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- iii. Drumming muscle absent in both male and female, and no drumming sound produced by either sex *Menticirrhus*.

It has been observed in *Pogonias* and other genera that the drumming sounds are heard most frequently during the spawning season; and it is evident that this function is primarily sexual. Coexistent with the ability to make sounds there should be the ability to appreciate them; and Dr. George H. Parker's recent study of the squeteague ear, at the Woods Hole laboratory of the Bureau of Fisheries, has shown in that species a well-developed sound-perceiving organ. It is a suggestive fact that in the *Sciænidae* the otoliths are exceptionally large; and as a meager contribution to this interesting subject I may mention that in *Menticirrhus* (in which no drumming sounds are produced) the otoliths are relatively smaller than in any of the other genera that have been examined.

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PETER ARTEDI.

ON March tenth of this year occurred the bicentenary of the birth of Artedi, distinguished Swedish naturalist, founder of modern systematic ichthyology, friend and preceptor of Linnæus, and coworker with the latter in various departments of natural history. Prematurely cut short in his career, he left an imperishable legacy to science in his own writings, and in so far as he helped stimulate the activity of his more famous fellow countryman. It is little wonder that Artedi's name should be held in pious regard by nearly all students of his favorite science, and that the two-hundredth anniversary of his birth should have been commemorated by some tribute of homage.

On behalf of the Swedish Royal Academy of Science, a biographical sketch of Artedi, with an appreciation of his service as an investigator in biological science, was prepared by Professor Einar Lönnberg, of Upsala University, and has been translated into English by W. E.

Harlock.¹ This is a plain and straightforward narrative, interesting and instructive, sympathetic but without pretense of eulogy; and though the mutual dependence of the two twin-stars of Swedish natural science is clearly set forth, there is no attempt to add luster to the one at the expense of the other. Brother students and pioneers, their relations are as pleasing to contemplate as those between Darwin and Wallace, and such comparisons as are drawn between them in this bicentenary memoir have every appearance of being true and fair-minded.

Many details of Artedi's life, his difficulties, devotion, temperament, methods of work and other matters not generally known are told in this brief biography. Those interested are commended to read the sketch itself. Only a word may be said here in appreciation of his ichthyological writings. The high regard professed for them by Dr. Günther and President Jordan in their popular works on 'Fishes' is well known, and it is rare that one meets with less favorable comments. Dr. Gill, however, is inclined to take a somewhat depreciatory view, since he remarks in *SCIENCE* (XXII., p. 140): "I can by no means assent to the estimate as to 'the extremely valuable historical and bibliographical works of Artedi.' * * * " We hope that our learned critic will not take it amiss if we set over against his opinion the following extracts from the biography now in our hands:

The fourth part of Artedi's 'Ichthyologia' is called 'Synonymia Nomium Piscium.' In it, as Günther truly remarks, references to all previous authors are arranged for every species, very much in the same manner as is adopted in the systematic works of the present day; these references and quotations are inserted under the diagnosis of each several species, entailing for the author a vast amount of labor, as Linnæus had occasion to find out when editing the work, for Artedi had not quite finished off the copying of them in. The laboriousness of the task becomes patent to all, when it is known that Artedi was so conscientious that he went back even to the ancient Greek and Latin writers, and endeavored to eluci-

¹ 'Peter Artedi: A Bicentenary Memoir,' by A. J. E. Lönnberg. Upsala and Stockholm, 1905, pp. 44.

date what they may have meant by their varied and diverse nomenclature and by other statements concerning certain fishes. More than 150 forms have been dealt with in that thorough-going style, the quotations under each one often exceeding a score in number. Artedi's 'Synonymia,' consequently, bears witness in its author not only to exceptional capacity for arduous toil and a deep and wide reading, but also to a rare degree of critical acumen and exactitude. For that reason the work forms a practically indispensable key to the earliest ichthyological literature (p. 40).

C. R. EASTMAN.

DECLARATION OF THE NATIONAL EDUCATIONAL ASSOCIATION AT THE ASBURY PARK MEETING.

THE National Educational Association, now holding its forty-fourth annual convention in Asbury Park and Ocean Grove, and representing the teachers and friends of education throughout the country, makes the following declaration of principles:

1. The Bureau of Education continues to render invaluable service to the nation. It is the judgment of the association that the powers of the bureau should be enlarged and that liberal appropriations should be made to it by Congress in order to enable it to widen its usefulness.

2. The National Educational Association notes with approval that the qualifications demanded of teachers in the public schools, and especially in city public schools, are increasing annually, and particularly that in many localities special preparation is demanded of teachers. The idea that any one with a fair education can teach school is gradually giving way to the correct notion that teachers must make special preparation for the vocation of teaching. The higher standard demanded of teachers must lead logically to higher salaries for teachers, and constant efforts should be made by all persons interested in education to secure for teachers adequate compensation for their work.

3. The rapid establishment of township or rural high schools is one of the most gratifying evidences of the progress of education. We believe that this movement should be encouraged until the children of rural communities

enjoy the benefits of public education to an extent approximating as nearly as practicable the education furnished in urban communities.

4. The association heartily approves of the efforts now being made to determine the proper place of industrial education in the public schools. We believe that the time is rapidly approaching when industrial education should be introduced into all schools and should be made to harmonize with the occupations of the community. These courses when introduced should include instruction in agricultural as well as manual training, etc. Wherever the conditions justify their establishment, schools that show the application of the branches of knowledge to practical life should be established.

5. The National Educational Association strongly recommends the increasing utilization of urban school buildings for free vacation schools and for free evening schools and lecture courses for adults, and for children who have been obliged to leave the day schools prematurely.

6. It is the duty of the state to provide for the education of every child within its borders and to see that all children obtain the rudiments of an education. The constitutional provision that all persons must contribute to the support of the public schools logically carries with it the implied provision that no persons should be permitted to defeat the purposes of the public school law by forcing their children at an early age to become breadwinners.

7. The national government should provide schools for the children of all persons living in territory under the immediate control of the government. The attention of Congress is specially directed to the need of adequate legislation to provide schools for the children of citizens of the United States living on naval reservations.

8. The association regrets the revival in some quarters of the idea that the common school is a place for teaching nothing but reading, spelling, writing and ciphering; and takes this occasion to declare that the ultimate object of popular education is to teach the children how to live righteously, healthily, and